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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,351	03/27/2001	Eiji Okano	FUJZ 18.491	1199

26304 7590 12/16/2004

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EXAMINER

SALCE, JASON P

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,351

Applicant(s)

OKANO ET AL.

Examiner

Jason P Salce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/27/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 3/27/2001 was filed on the filing date of the instant application on 3/27/2001. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: M34. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1, 7 and 8 are objected to because of the following informalities:

Referring to claim 1, on Line 4, the limitation "each subscriber terminal" is unclear. The examiner notes that the cable modem in Figure 14 supplies a subscriber LAN with access to the cable headend, therefore a plurality of subscribers are being sent data from a single cable modem (also note Figure 15 for supplying two subscriber terminals with DHCP assigned IP addresses. Further, Figures 1-2 only discloses using the DHCP to assign an IP address to a single subscriber terminal. Since the applicant uses the term "each", the examiner, after considering the specification, is unclear if applicant meant to express a single subscriber terminal or a plurality of subscriber terminals. For the remainder of this Office Action, the examiner will assume that the limitation should read "a" subscriber terminal, since the cable modem in Figure 1 is supplying only one subscriber terminal. Appropriate correction is required.

On Line 7, the limitations "receiving/transmitting" and "to/from" are unclear. The limitation does not specify if the applicant meant "or" or "and". After further review of the specification in regards to the DHCP process, the examiner will assume that the applicant meant to use the limitation "and".

Referring to claim 7, on Line 11, the limitation "another cable modem" is referring to a third cable modem, not specified in the specification. Claim 7 specifies sending a notification from a first cable modem, stating it's new IP address, and in turn, tells a second cable modem to remove that address from it's routing table, so that no conflicts occur between the first and second cable modem. Therefore, "another cable modem" should state "the cable modem" in order to reference the cable modem making the

notification to the cable modem termination system of it's new address, as specified at the bottom portion of Figure 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (U.S. Patent No. 6,240,464) in view of Wong et al. (U.S. Patent No. 6,073,178).

Referring to claim 1, Fijolek discloses a cable modem system (see Figure 8) comprising a cable modem termination system (see CMTS 12 in Figure 8) for connecting a CATV center (see Headend 26 in Figure 8) to a CATV transmission line (see Cable Network 14 in Figure 8).

Fijolek also discloses a cable modem (see Cable Modem 16 in Figure 8) for connecting a subscriber terminal (see CPE 20 in Figure 8) to the CATV transmission line (see Cable Network 14 in Figure 8). The examiner notes that if applicant wishes to express a plurality of subscriber terminals exist (as described in the claim objection to claim 1, discussed above), see Column 29, Lines 1-18 for connecting multiple network devices.

Fijolek also discloses a DHCP server (see DHCP server 160 in Figure 8 and Column 25, Lines 50-52) for dynamically allocating an IP address to the subscriber

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terminal by transmitting and receiving DHCP messages to and from the subscriber terminal through the cable modem (see Figures 15A-15B and Column 25, Lines 22-36 and Lines 58-67 and Column 26, Lines 1-4 and Lines 18-20 for the subscriber terminal transmitting a DCHPDISCOVER message to the DHCP server and for the subscriber terminal receiving a DCHPOFFER message from the DHCP server, in order to allocate an IP address to the subscriber terminal (see Column 26, Lines 28-30)).

Fijolek also discloses that the cable modem termination system has a DHCP server address-notifying portion for notifying the cable modem of a DHCP server address (see Column 9, Lines 63-67 and Column 10, Lines 1-22 and Lines 63-67 for when initial power-up of a cable modem, information is sent in the form of a TCD message, which contains SPD parameters, which contains the server address of a DHCP server).

Fijolek also discloses that the cable modem has a DHCP relay agent for relaying the DHCP messages as a relay agent (see Column 22, Lines 65-67 for the CM 16 functioning as a standard relay agent), an IP address detector for detecting the IP address from the DHCP message (see Column 22, Lines 42-45 for detecting the IP address in the DHCPACK message and using this address for receiving data over the network), an IP address storage for storing the IP address (see Column 23, Lines 2-5 and Column 27, Lines 55-65 for storing IP address in a routing table), and a packet filtering portion for restricting the cable modem and subscriber terminals to use the IP addresses that they are assigned to (see Column 8, Lines 59-61 for the CM 16 and

CPE 18 using IP 54 datagram filtering to restrict the CM 16 and CPE 18 to the use of only their assigned IP 54 addresses).

However, although Fijolek discloses a packet-filtering portion and that the cable modem 16 acts as a router for routing packets upstream from a subscriber terminal (see Column 28, Lines 4-7), Fijolek fails to disclose the details of the packet filtering functionality, such as discarding a packet when the source IP address is other than the IP address stored in the IP address storage when the packet is received from the subscriber.

Wong specifically details the specifics of packet filtering by a router in Figure 1. Wong also discloses that when the packet filtering portion is used, a packet is discarded when a source IP address other than the IP address stored in the IP address storage when the packet is received from the subscriber terminal (see Column 9, Lines 1-20 for comparing a source IP address to an assigned IP address stored in an IP address table (see Column 7, Lines 47-53) and if the source IP address is not found in the IP address table, then the packet (sent upstream from the subscriber terminal is discarded).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify packet filtering process, as taught by Fijolek, using the upstream packet filtering process, as taught by Wong, for the purpose of preventing client systems from usurping IP addresses to gain illicit access to IP packets (see Column 3, Lines 14-16 of Wong).

Claim 3 corresponds to claim 1, where Fijolek discloses that the cable modem has a lease time storage for storing a lease time (see Column 30, Lines 19-21 for

checking if the lease time is stored in an ARP table of the CMTS 12 and also note Column 30, Lines 50-55 for the ARP table being implemented in the cable modem 16 instead of the CMTS 12) of the IP address dynamically allocated to the subscriber terminal by the DHCP message (see Column 30, Lines 11-14 for assigning the IP address dynamically allocated to the subscriber terminal (CPE 18) by the DHCP message (DHCPACK message) sent from the DHCP server 66), and clears the IP address stored in the IP address storage after the lease time has expired (see Column 30, Lines 42-48 for clearing the IP address in the IP address storage (routing table) when the lease time has expired) to make the subscriber terminal be in a state where the IP address is unallocated (note that if the IP address is no longer in the IP address storage (routing table) then packets cannot be routed to that address, because the address is no longer allocated to a device in the IP address storage (routing table) at Column 30, Lines 42-48).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (U.S. Patent No. 6,240,464) in view of Wong et al. (U.S. Patent No. 6,073,178) in further view of Takahara et al. (U.S. Patent No. 6,078,583).

Claim 5 corresponds to claim 1, where Fijolek and Wong disclose all of the limitations in claim 1, and where Fijolek further teaches that the cable modem acts as a relay agent to forward traffic upstream from a subscriber terminal (see Column 22, Lines 65-67 and Column 28, Lines 4-7 for communicating with a DHCP server through the CM acting as a BOOTP relay agent) and that the subscriber terminal can send a release

message (DHCP release message) to a host server in order to release the allocated IP address (see Column 28, 32-35 and Column 30, Lines 3-5). Therefore, since the CM 16 must forward DHCP messages sent from the subscriber terminal (CPE 18) to the CMTS 12 and DHCP server 160, the CM 16 must inherently have a release message detector, in order to send the message upstream to the CMTS 12 and DHCP server 160.

Fijolek also discloses that the CM 16 contains a routing table for forwarding data to the CPE 18 using it's proper IP address and MAC address combination (see Column 23, Lines 2-5 and Column 27, Lines 55-57 for routing data according to the proper IP/MAC address combination to the CPE), but fails to disclose clearing the IP address stored in the IP address storage when the DHCP release message is detected (from the subscriber terminal) to make the subscriber terminal be in a state where the IP address is unallocated.

Takahara discloses sending a release message from a subscriber terminal to a router, which contains a routing table (similar to the CM's routing table of Fijolek), where the message causes the routing table to delete the IP requested for release, sent from the subscriber terminal (see steps 414 and 415 of Figure 5 and Column 5, Lines 55-60 and Column 6, Lines 27-31). Also note that if the IP address is no longer in the IP address storage (routing table) then packets cannot be routed to that address, because the address is no longer allocated to a device in the IP address storage (routing table), therefore the subscriber terminal is in a state where the IP address is unallocated.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the DHCPRelease message sent from the CPE 18, as taught by Fijolek and Wong, using the release message that clears the IP address from IP address storage, as taught by Takahara, for the purpose of making it easier to start communications between terminals connected to the internet through the public network (see Column 1, Lines 50-52 of Takahara).

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (U.S. Patent No. 6,240,464) in view of Wong et al. (U.S. Patent No. 6,073,178) in further view of Philippou et al. (U.S. Patent No. 6,385,648).

Referring to claim 2, Fijolek and Wong disclose all of the limitations in claim 1, as well as a packet filtering portion that discards a packet having a source IP address other than the assigned IP address when the packet is received from the subscriber terminal (see the rejection of claim 1).

However, although Fijolek and Wong disclose that a subscriber terminal is in a state where an IP address is unallocated by the DHCP server (see Column 28, Lines 32-35 of Fijolek for the unallocating of a subscriber terminal), Fijolek and Wong fail to disclose that if the subscriber terminal is in an unallocated state that the subscriber terminal has a predetermined initial IP address.

Philippou discloses that an uninitialized box (see Figure 3) can have an IP address set to a predetermined arbitrary IP address, such as 0.0.0.0, when there has been no IP address allocated to the box (see Column 6, Lines 41-47).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the subscriber terminal (CPE 18), as taught by Fijolek and Wong, using the predetermined initial IP address stored in the uninitialized box (subscriber terminal/CPE 18), as taught by Philippou, for the purpose of preventing a network administrator from manually having to set the network identifier before the box is recognized in the network and allowing an uninitialized box with a default address (see arguments above in regards to a predetermined initial IP address) to be automatically allocated an identifier upon connection to the network (see Column 1, Lines 54-66 of Philippou).

Claim 4 corresponds to claim 2, where Fijolek discloses that the cable modem has a lease time storage for storing a lease time (see Column 30, Lines 19-21 for checking if the lease time is stored in an ARP table of the CMTS 12 and also note Column 30, Lines 50-55 for the ARP table being implemented in the cable modem 16 instead of the CMTS 12) of the IP address dynamically allocated to the subscriber terminal by the DHCP message (see Column 30, Lines 11-14 for assigning the IP address dynamically allocated to the subscriber terminal (CPE 18) by the DHCP message (DHCPACK message) sent from the DHCP server 66), and clears the IP address stored in the IP address storage after the lease time has expired (see Column 30, Lines 42-48 for clearing the IP address in the IP address storage (routing table) when the lease time has expired) to make the subscriber terminal be in a state where the IP address is unallocated (note that if the IP address is no longer in the IP address storage (routing table) then packets cannot be routed to that address, because the

address is no longer allocated to a device in the IP address storage (routing table) at Column 30, Lines 42-48).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fijolek et al. (U.S. Patent No. 6,240,464) in view of Wong et al. (U.S. Patent No. 6,073,178) in further view of Philippou et al. (U.S. Patent No. 6,385,648) in further view of Takahara et al. (U.S. Patent No. 6,078,583).

Claim 6 corresponds to claim 2, where Fijolek, Wong and Philippou, disclose all of the limitations in claim 2, as well as Fijolek disclosing that the cable modem acts as a relay agent to forward traffic upstream from a subscriber terminal (see Column 22, Lines 65-67 and Column 28, Lines 4-7 for communicating with a DHCP server through the CM acting as a BOOTP relay agent) and that the subscriber terminal can send a release message (DHCP release message) to a host server in order to release the allocated IP address (see Column 28, 32-35 and Column 30, Lines 3-5). Therefore, since the CM 16 must forward DHCP messages sent from the subscriber terminal (CPE 18) to the CMTS 12 and DHCP server 160, the CM 16 must inherently have a release message detector, in order to send the message upstream to the CMTS 12 and DHCP server 160.

Fijolek also discloses that the CM 16 contains a routing table for forwarding data to the CPE 18 using it's proper IP address and MAC address combination (see Column 23, Lines 2-5 and Column 27, Lines 55-57 for routing data according to the proper IP/MAC address combination to the CPE), but fails to disclose clearing the IP address

stored in the IP address storage when the DHCP release message is detected (from the subscriber terminal) to make the subscriber terminal be in a state where the IP address is unallocated.

Takahara discloses sending a release message from a subscriber terminal to a router, which contains a routing table (similar to the CM's routing table of Fijolek), where the message causes the routing table to delete the IP requested for release, sent from the subscriber terminal (see steps 414 and 415 of Figure 5 and Column 5, Lines 55-60 and Column 6, Lines 27-31). Also note that if the IP address is no longer in the IP address storage (routing table) then packets cannot be routed to that address, because the address is no longer allocated to a device in the IP address storage (routing table), therefore the subscriber terminal is in a state where the IP address is unallocated.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art, to modify the DHCPRelease message sent from the CPE 18, as taught by Fijolek, Wong and Philippou, using the release message that clears the IP address from IP address storage, as taught by Takahara, for the purpose of making it easier to start communications between terminals connected to the internet through the public network (see Column 1, Lines 50-52 of Takahara).

Allowable Subject Matter

8. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Referring to claims 7-8, the prior art of record fails to anticipate or rendered obvious notifying the other (second) cable modem to clear the stored IP address to make the subscriber terminal connected to the other (second cable) modem be in a state where the IP address is unallocated when the address is already stored by a notification from another (first) cable modem. Claim 7 is represented in the specification by Figure 15, for sending a prohibited IP notification (M34) to a cable modem 200, after a cable modem 300 receives an IP address that was previously stored in cable modem 200, and was not properly deleted after the expiration time. Fijolek teaches the notification of deleting (releasing) an IP address from its table, but fails to teach doing so after another cable modem has already stored the IP address, which prevents improper dual use of the same IP address.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason P Salce whose telephone number is (703) 305-1824. The examiner can normally be reached on M-Th 8am-6pm (every other Friday off).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 12, 2004

A handwritten signature in black ink, appearing to read "Jason Salce". The signature is written in a cursive, flowing style with a long, sweeping underline.